IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method of producing a cladding tube for nuclear fuel for a nuclear boiling water reactor, which method comprises the following steps:

forming a tube comprising:

an outer cylindrical component comprising a first composition comprising a zirconium-based alloy; and

an inner cylindrical component metallurgically bonded to the outer component, wherein the inner component comprises a second composition comprising 0.1 to 0.4 percentage by weight Sn, 400 to 1500 ppm Fe, less than 600 ppm O and the rest Zr, except for impurities of a content that does not exceed that which is normally accepted in Zr or Zr-alloys for applications in nuclear reactors,

wherein the first and second compositions materially differ from each other, and wherein the second composition has a lower recrystallization temperature than the first composition;

rolling the tube; and

finally annealing the cladding tube at a temperature and a time that results in a first degree of recrystallization of the outer component and a second degree of recrystallization of the inner component, wherein the second degree is at least 97 percent and wherein the first degree is less than the second degree and higher than 50%.

2. (Canceled)

3. (Previously Presented) A method according to claim 1, wherein the second degree of recrystallization is 100% and the first degree of recrystallization is between 50 % and 96%.

4. – 5. (Canceled)

6. (Previously Presented) A method according to claim 1, wherein the first composition comprises Zircaloy 2 or Zircaloy 4.

7. – 8. (Canceled)

9. (Previously Presented) A method according to claim 1, wherein the inner component has a thickness such that it constitutes between 3% and 30% of the total thickness of the cladding tube.

10. (Previously Presented) A method according to claim 1, wherein the step of finally annealing is carried out at a temperature between 485°C and 550°C.

11. (Previously Presented) A method according to claim 1, wherein the step of finally annealing is performed for 1 h to 6h.

12. (Canceled)

13. (Previously Presented) A cladding tube for nuclear fuel for a nuclear boiling water reactor, which cladding tube comprises:

an outer cylindrical component comprising a first composition comprising a zirconium-based alloy and having a first recrystallization temperature, wherein the outer cylindrical component has a first degree of recrystallization higher than 50 percent; and

an inner cylindrical component comprising a second composition comprising 0.1 to 0.4 percentage by weight Sn, 400 to 1500 ppm Fe, less than 600 ppm O and the rest Zr, except for impurities of a content that does not exceed that which is normally accepted in Zr or Zr-alloys for applications in nuclear reactors, and having a second recrystallization temperature lower than the first recrystallization temperature, wherein the inner cylindrical component has a second degree of recrystallization greater than the first degree of recrystallization and at least 97 percent, wherein the inner cylindrical component is metallurgically bonded to the outer component, and wherein the first and second compositions materially differ from each other.

14. (Canceled)

15. (Previously Presented) A cladding tube according to claim 13, wherein the second degree of recrystallization is 100% and the first degree of recrystallization is between 50% and 96%.

16. – 17. (Canceled)

18. (Previously Presented) A cladding tube according to claim 13, wherein the first composition comprises Zircaloy 2 or Zircaloy 4.

19. – 20. (Canceled)

21. (Previously Presented) A cladding tube according to claim 13, wherein the inner component has a thickness such that it constitutes between 3% and 30% of the total thickness of the cladding tube.

22. (Previously Presented) A fuel assembly for a nuclear boiling water reactor, comprising:

an enclosing tube; and

a plurality of cladding tubes according to claim 13 filled with nuclear fuel, wherein said plurality of cladding tubes are arranged inside said enclosing tube.

23. (Previously Presented) A method according to claim 1, wherein the second degree of recrystallization is at least 97 percent and the first degree of recrystallization is between 70 percent and 90 percent.

24. (Previously Presented) A method according to claim 6, wherein the first composition further comprises between 1.2 and 1.7 percent Sn by weight of the first composition.

25. (Previously Presented) A cladding tube according to claim 13, wherein the second degree of recrystallization is 100% and the first degree of recrystallization in the outer component is

between 70 percent and 90 percent.

26. (Previously Presented) A cladding tube according to claim 18, wherein the first composition further comprises between 1.2 and 1.7 percent Sn by weight of the first composition.

27. (Previously Presented) The method of claim 1, wherein the step of finally annealing is carried out at a temperature between 485°C and 515°C.

28. (Previously Presented) The method of claim 1, wherein the second composition consists essentially of 0.1 to 0.4 percentage by weight Sn, 400 to 1500 ppm Fe, less than 600 ppm O and the rest Zr, except for impurities of a content that does not exceed that which is normally accepted in Zr or Zr-alloys for applications in nuclear reactors.

29. (Previously Presented) The cladding tube according to claim 13, wherein the second recrystallization temperature is between 485°C and 550°C.

30. (Previously Presented) The cladding tube according to claim 29, wherein the second recrystallization temperature is between 485°C and 515°C.

31. (Previously Presented) The method of claim 10, wherein the step of finally annealing is carried out at a temperature between 485°C and 515°C.

32. (Previously Presented) The method of claim 1, wherein the first degree of recrystallization is between 60 percent and 90 percent.

33. (Previously Presented) The cladding tube of claim 13, wherein the first degree of recrystallization is between 60 percent and 90 percent.